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FACSIMILE COVER SHEET

March 5, 2003

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Our File No.: 2862/D01/SYNX/SYNX/BG

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Ilya Perlov (Deceased), Eugene Gantvarg
and Victor Belitsky

Serial No. : 09/918,198

Filed : July 30, 2001

For : APPARATUS FOR STORING AND MOVING
A CASSETTE

Examiner : James W. Keenan

Group Art Unit : 3652

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REPLY UNDER 37 CFR 1.116
- EXPEDITED PROCEDURE -
EXAMINING GROUP 3652

2862/D01/SYNX/SYNX/BG

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Washington, D.C. 20231

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RESPONSE AFTER FINAL REJECTION

Sir:

In response to the Examiner's Office Action dated December 5, 2002, Applicants submit this Response to place the above identified application in condition for allowance or, in the alternative, in better condition for appeal.

Regarding the references relied upon by the Examiner, Fosnight provides for integrating a plurality of process tools

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Valerie G. Dugan
(name of person certifying)

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102 within a tool bay 100 wherein each tool 102 shares a common storage system, and each tool shares a common delivery system (FIGS. 4-5, col. 6 line 46, col. 14 lines 29-33). The delivery and storage systems combine to form an integrated intrabay system for buffering, delivering, and stocking SMIF pods within the tool bay 100.

The storage system of Fosnight includes a plurality of shelves 106, each shelf 106 being capable of supporting a pod 108 (col. 6 lines 58-60). The shelves may be mounted on one or more panels 114 (FIG. 6), which panels may be mounted in modular sections within the tool bay 100 (col. 7 lines 26-28). The panels 114 may comprise portions of a clean room wall and be mounted to the floor of the tool bay and braced against the ceiling of the tool bay (col. 7 lines 28-30). The panels 114 may alternatively be mounted to the ceiling of the tool bay (col. 7 lines 30-31). In a particular embodiment of the storage system shown in FIG. 13, the storage system comprises a plurality of shelves 260 mounted to a column 258, and the column 258 is mounted to and suspends downward from the ceiling of the tool bay.

The delivery system of Fosnight includes a pair of shuttles 116 for transporting pods within the tool bay 100 (col. 9 lines 34-36). Each shuttle 116 includes a gripper 120 that is movable vertically along vertical rails of the shuttle (col. 9 lines 38-40). Each shuttle 116 is movable horizontally along rails 126a and 126b that span the length of the tool bay 100 (col. 9 lines 43-44), wherein the shuttle is coupled at one end to an upper rail 126a and at the other end to a lower rail 126b (FIGS. 7-8). Another embodiment of the delivery system of Fosnight has the shuttle 116 movable horizontally along a pair of rails 130a and 130b (FIGS. 9-10) wherein the rails 130a and 130b

are at the same elevation and are mounted along a top portion of the tool bay 100 (col. 10 lines 2-3).

Alternatively, as in the embodiment of the delivery system of FIG. 13, a first shuttle 250 rides on rails 252a and 252b, a second shuttle 254 rides on rails 256a and 256b, and the column 258 discussed above hangs between the first and second shuttles.

Fosnight provides that the rails 126a and 126b are positioned such that the shuttle 116 passes in front of the shelves 106, and that the gripper 120 extends away from the shuttle 116 and into the space of the shelves 106 so as to share the same depth (occupy the same vertical plane) as the shelves 106 (col. 11 lines 55-59). This is an important feature of the integrated system of Fosnight that enables the delivery system and the storage system to interact and that enables both systems to serve the entire tool bay 100.

Claim 1 of the present invention calls, in relevant part, for a frame, a plurality of shelves supported by the frame, and a cassette mover supported by the frame. Embodiments of a cassette stocker 50 are described in the detailed description of the present invention that include a frame 60 that supports one or more storage racks 58, including, for example, storage shelves 62a-62f, wherein two vertical posts 66 secure the support shelves to the frame 60 (page 5 lines 20-30, page 6 lines 2-3). A horizontal guide 78 of a robotic cassette mover 56 may be attached to or be part of the frame 60. Each processing station (e.g., 20' and 20") may be equipped with an adjacent cassette stocker (e.g., 50' and 50"), and moreover movement of cassettes between processing stations may occur via an interstation transfer apparatus 120 (page 8 lines 19-20, 22-23). This underscores a basic premise of the present disclosure (i.e., that

a modular construction be provided by a stand-alone frame that supports shelves and a cassette mover.

Fosnight, by contrast, discloses modular construction only with regard to panels 114 that support shelves 106. The delivery system is designed to be continuous and span the length of the tool bay 100, and as such does not suggest support by a frame. In fact, the only mounting details disclosed in Fosnight relative to rails of the delivery system provide that they are mounted "along a top portion of the tool bay." Although an outer panel 115 is disclosed as "encasing the shelves and shuttles" (col. 12, lines 8-9) so that the shelves and shuttles are "located entirely behind panels 115 on the walls of the tool bay," this panel is not described as being part of a common mounting scheme of the shelves and shuttles. Rather, the panel 115 is for the protection of human operators (col. 12 lines 10-11) and is preferably also clear, so that an operator can look through the panel, e.g., to locate a particular cassette (col. 12 lines 15-18). Although FIG. 6 shows a shuttle 116, shelves 106, a panel 114 and an outer panel 115, the specification of Fosnight provides no support for the conclusion that a frame is somehow comprised thereby. Rather, based on the disclosure referenced above, it is appropriate to conclude the opposite, e.g., separate mounting schemes for shuttles 116 and shelves 106.

It should also be pointed out that the delivery system of Fosnight spans the entire tool bay, and therefore is not a system that easily accommodates incremental equipment upgrades, e.g., as new tools are brought on line, or for reconfiguration of existing cassette delivery equipment, e.g., after a change in the layout of a fabrication floor. Because of the inherently modular design of the cassette storage apparatus of the present invention, however, incremental investment in capital equipment and reconfiguration of existing equipment is supported and

encouraged as necessary. This is at least partially driven by the fact that a convenient frame is provided that provides common support for the cassette mover and the storage shelves.

Applicants further attribute at least a portion of the advantages provided by the apparatus of the present invention to the modular aspects of its frame-centered design, and would therefore respectfully dispute any construction of the claims that denies the significance and distinguishing power of the frame-mounting scheme recited therein.

The dependent claims of the present invention recite further limitations that distinguish over Fosnight. For example, claim 5 calls for the frame to substantially fit below the docking station. As well, all other independent claims provide that the shelves and the cassette mover are supported by a common frame.

Iwai and Murata provide self-contained systems not adapted to permit positioning adjacent a clean room wall so that an end effector of the system may carry cassettes between shelves and a docking station adjacent an opening in the clean room wall. In fact, the enclosed stocker of Murata and the enclosed treatment apparatus of Iwai are adapted to receive and dispense cassettes or pods of cassettes for storage and/or treatment without cooperation with docking stations that are external to the system, and neither disclose nor suggest the use of the systems in such a manner.

Moreover, Iwai and Murata do not disclose a frame-mounting scheme for a cassette mover and storage shelves as required in the claims of the present invention. Although Iwai and Murata provide means for storing and moving cassettes within a common enclosure, this is not the same as disclosing a frame for commonly mounting shelves and a cassette mover, such that the frame can be positioned adjacent a clean room wall and permit

interaction between the frame-mounted cassette mover and a docking station, as specified in the present claims and described fully in the present application.

Based on the above remarks, Applicants respectfully submit that the rejection of claims 1-3, 6, 11 and 18-22 under 35 USC § 102(b) as being anticipated by Murata et al. (US 5,628,604), the rejection of claims 1-3, 6-7, 11, 14-15, 17-18 and 20-21 under 35 USC § 102(b) as being anticipated by Iwai et al. (US 5,562,383), the rejection of claims 1-3, 6-8, 11-18 and 22 under 35 USC § 102(a) as being anticipated by Fosnight (WO 98/46503) and the rejection of claims 5 and 9-10 under 35 USC § 103(a) as being unpatentable over Fosnight, should be withdrawn. Accordingly, Applicants respectfully request that the Examiner revisit his position relative to the Fosnight, Murata and Iwai references in light of the above discussion of those references. Applicants invite the Examiner to contact the Applicants' undersigned representative to further discuss the matter should any issues remain.

Applicants believe the application is now in condition for allowance, and respectfully request reconsideration and allowance of the same. Applicants do not believe any fees are due regarding this Amendment. However, if any additional fees are required, please charge Deposit Account No. 04-1696.

Respectfully Submitted,



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Dated: March 5, 2003
Tarrytown, New York